Fig. 1

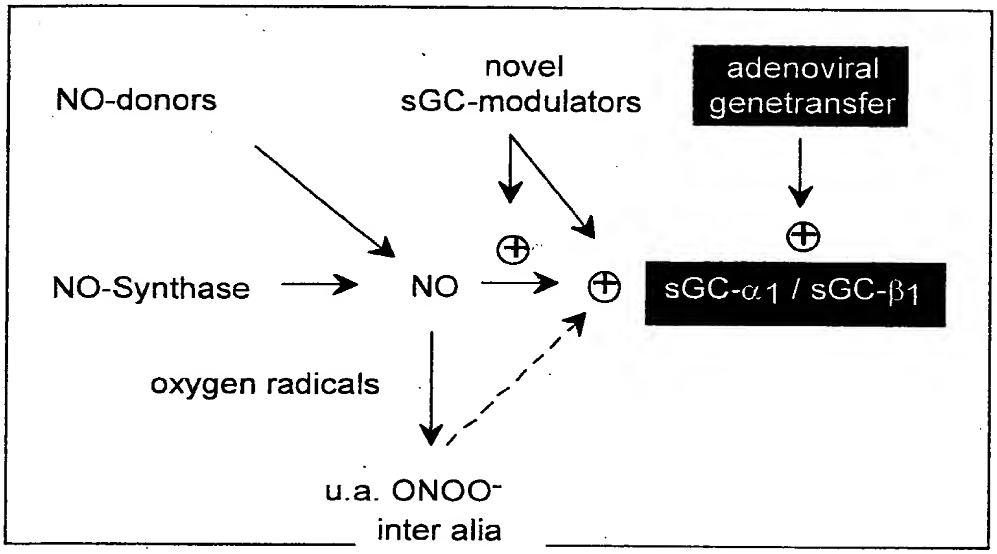

NO-donors
novel sGC-modulators
adenoviral genetransfer
NO-Synthase
NO
sGC-α1 / sGC-β1
oxygen radicals
u.a. ONOO⁻
inter alia

Figure 2

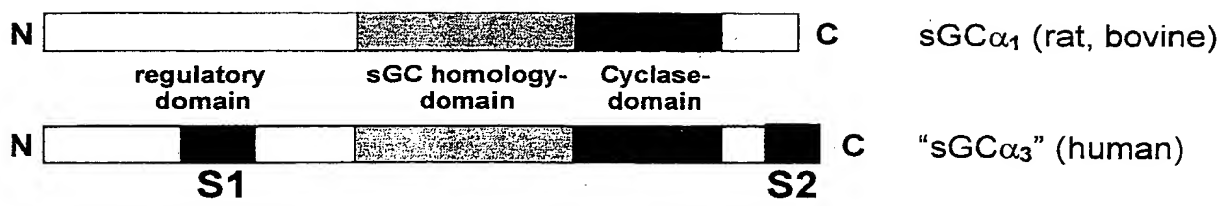
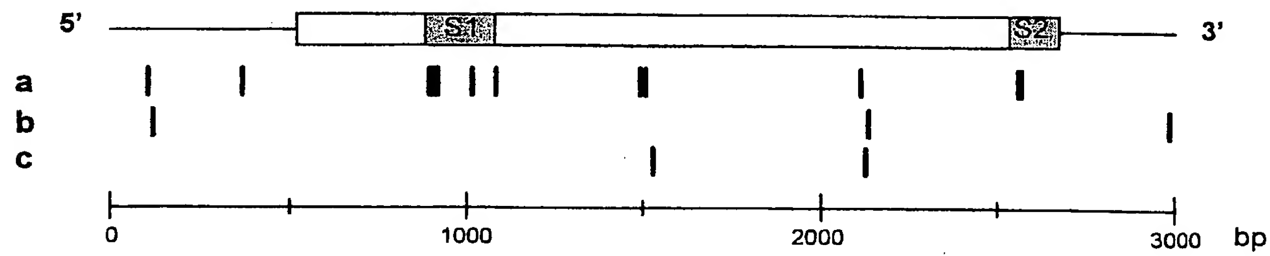

N
C
sGCα1 (rat, bovine)
regulatory domain
sGC homology-domain
Cyclase-domain
N
C
"sGCα3" (human)
S1
S2

Figure 3



a: nucleotide insertions
C95, C367, T891, G900, T903, G913, T1006, G1074, G1487, A1488, A1489, G2108, G2555, T2560

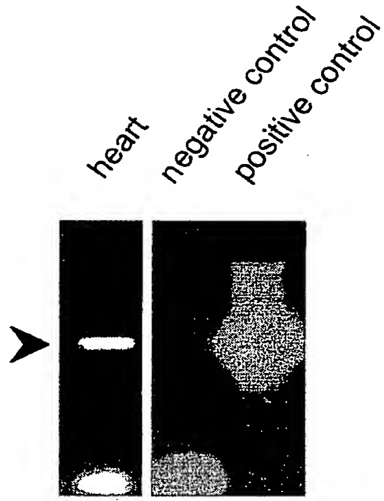
b: nucleotide delentions
T between G111 and T112, T between T2128 and G2129, T between G2975 and T2976

c: nucleotide exchanges
C1525>G, G2125>A

Figure 4

A

PCR determination of hsGCα1



B

PCR determination of hsGCβ1

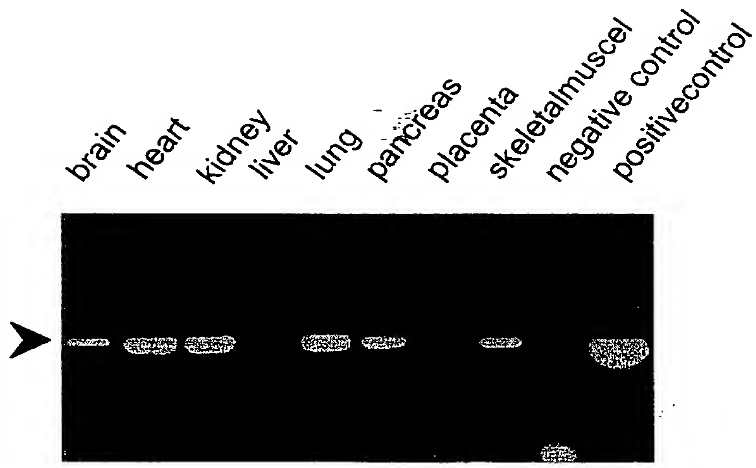
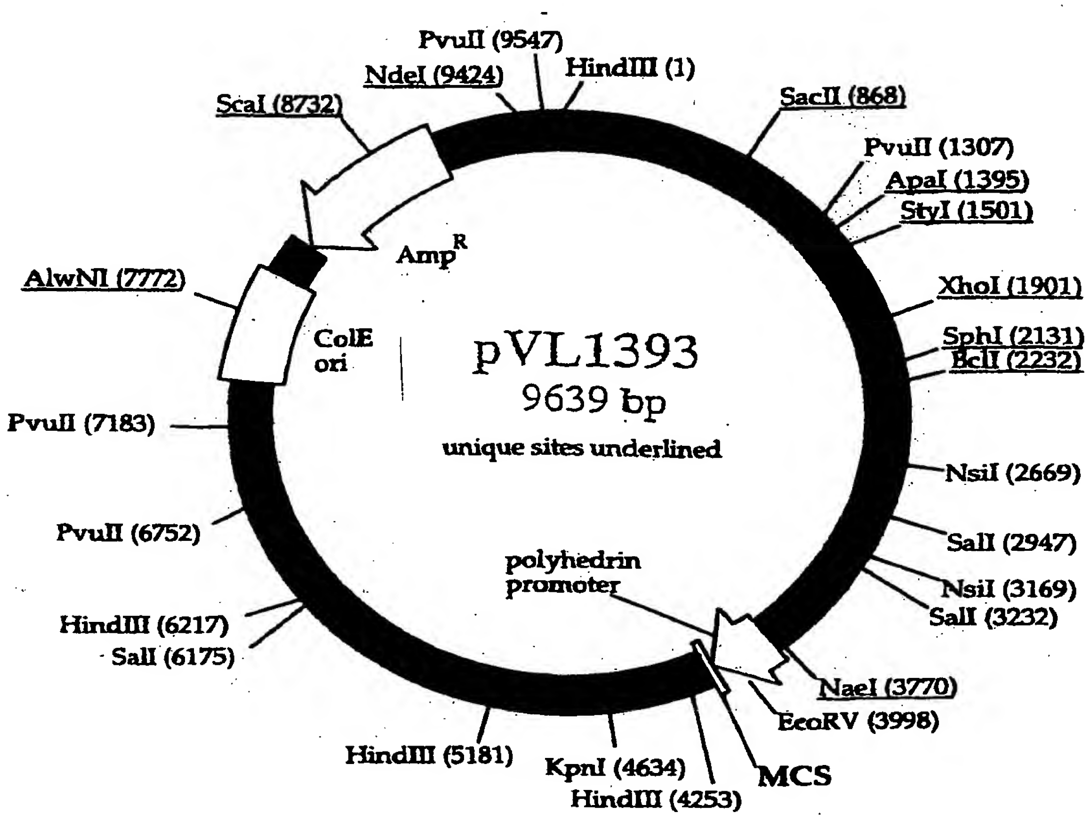


Figure 5

pVL1393 Baculovirus Transfer Vector



multiple cloning site (MCS) of pVL1393 with the unique restriction sites

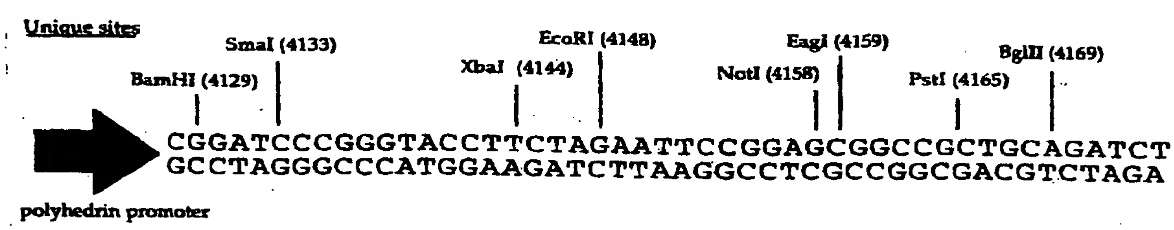
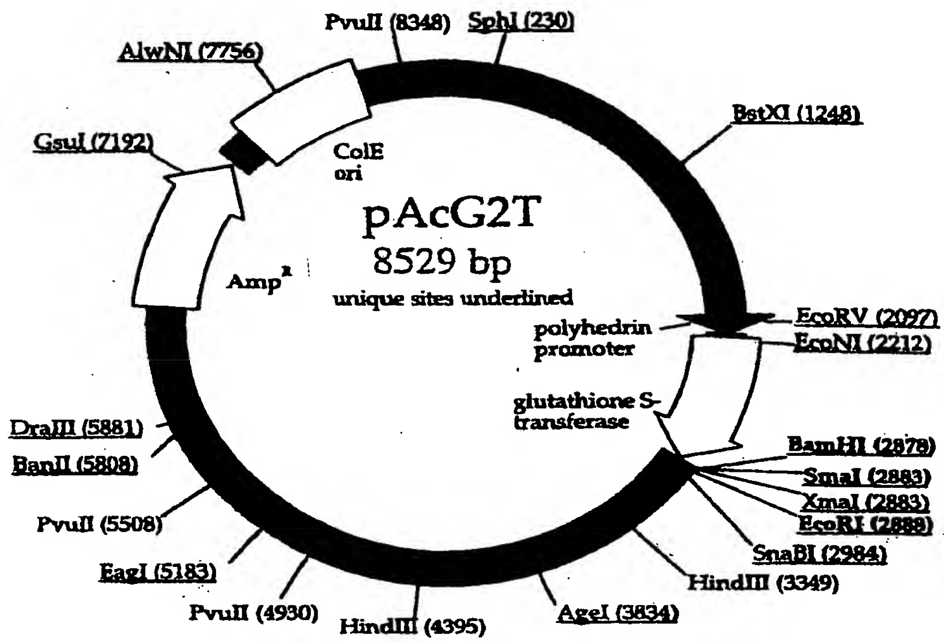


Figure 6

pAcG2T Baculovirus Transfer Vector



multiple cloning site (MCS) of pAcG2T downstream of glutathione-S-transferase sequence (GST) with the thrombin cleavage site and the unique restriction sites

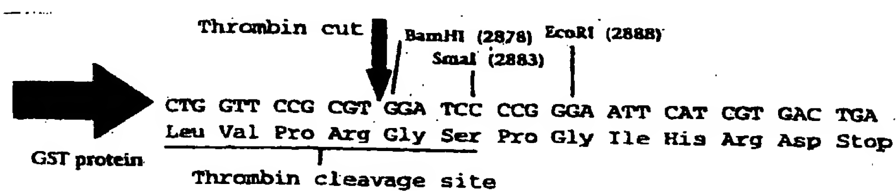
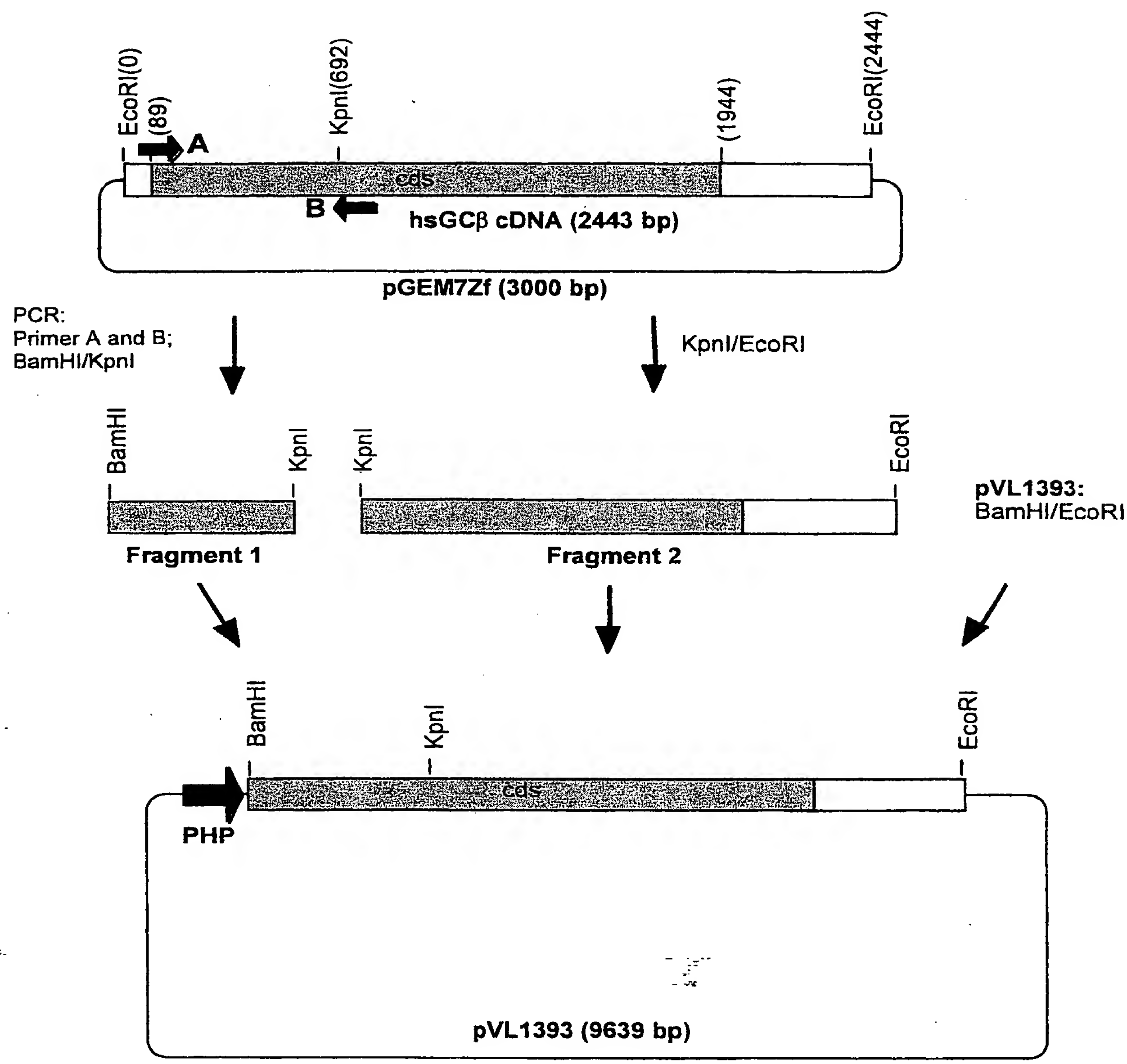
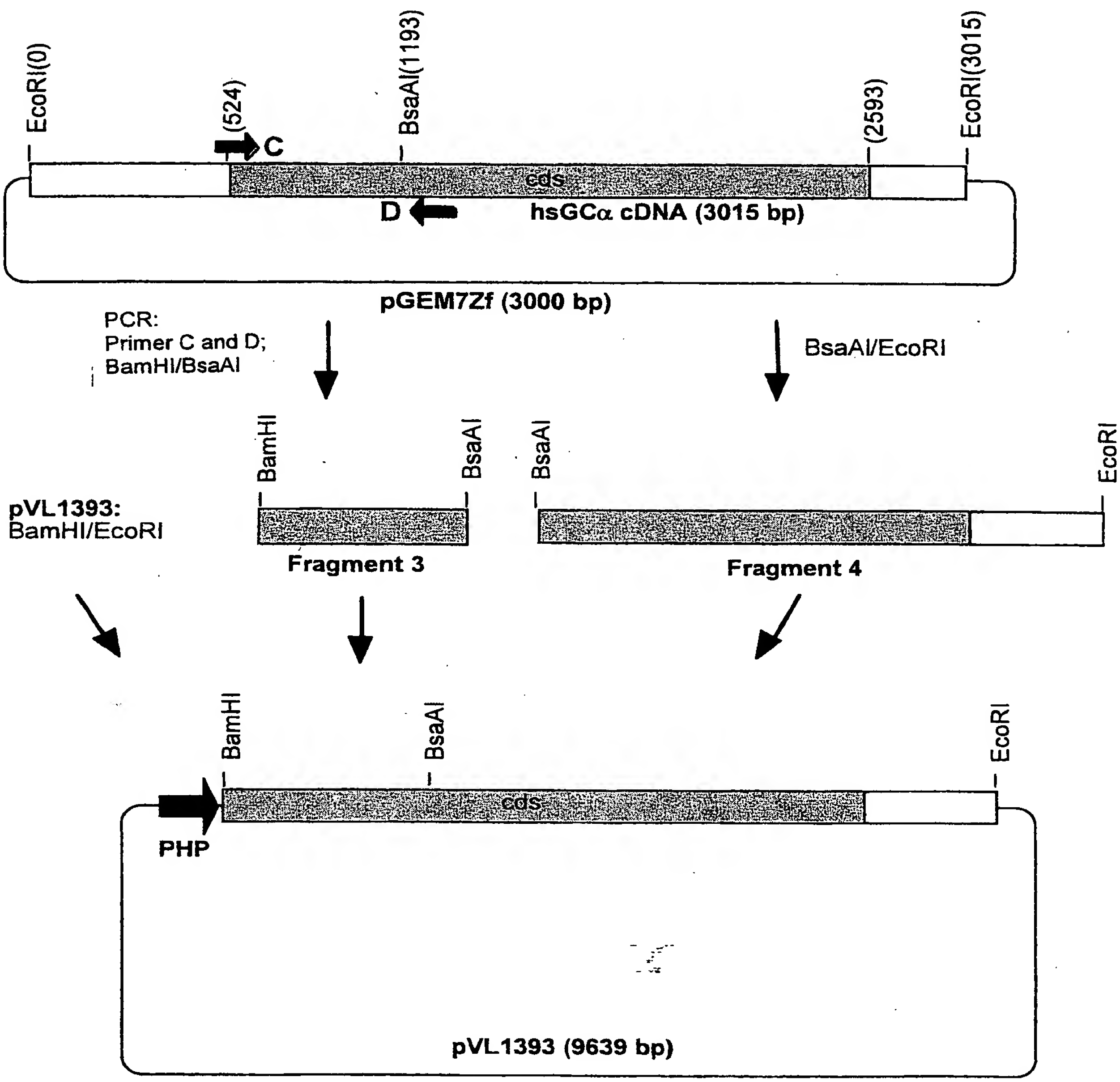


Figure 7: Cloning of hsGCβ in pVL1393



Primer:	**A**	5' AAAA $\boxed{\text{GGATCC}}$ ATGTACGGATTTGTGAAT 3' BamHI (89) (116)
	B	3' $\boxed{\text{CCATGG}}$ GTCCTTAGTGCGTA 5' (692) KpnI (711)

Figure 8: Cloning of hsGCα in pVL1393



Primer: **C** 5' AAAA $\boxed{\text{GGATCC}}$ ATGTTCTGCACGAAGCTC 3'

BamHI (524) (541)

D 3' GGAGGGACGAAGGTATTA 5'

(1232) (1249)

Figure 9

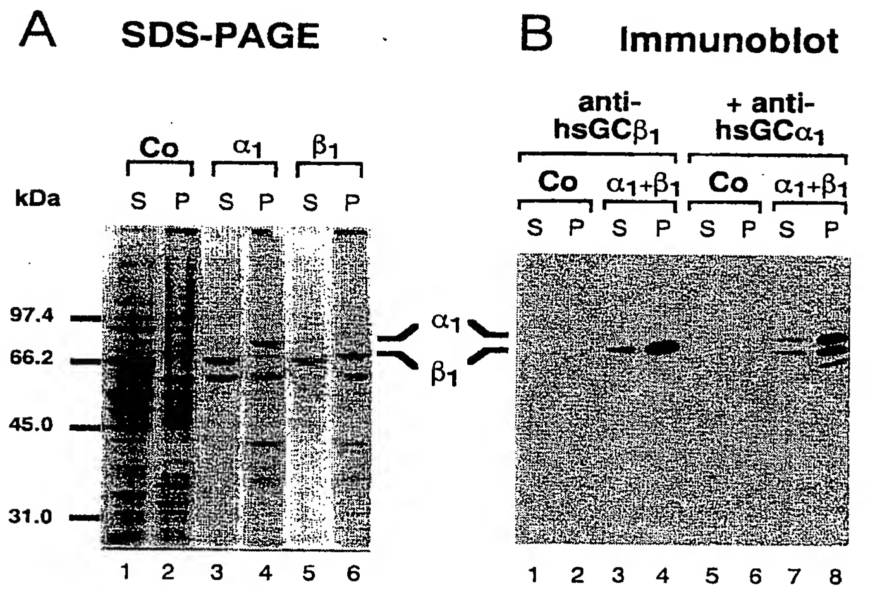

A
SDS-PAGE
Co
α_1
β_1
kDa
S P S P S P
97.4
66.2
45.0
31.0
1 2 3 4 5 6
α_1
β_1
B
Immunoblot
anti-
hsGCβ_1
+ anti-
hsGCα_1
Co
α_1+β_1
Co
α_1+β_1
S P S P S P S P
1 2 3 4 5 6 7 8

Fig. 10

A

B

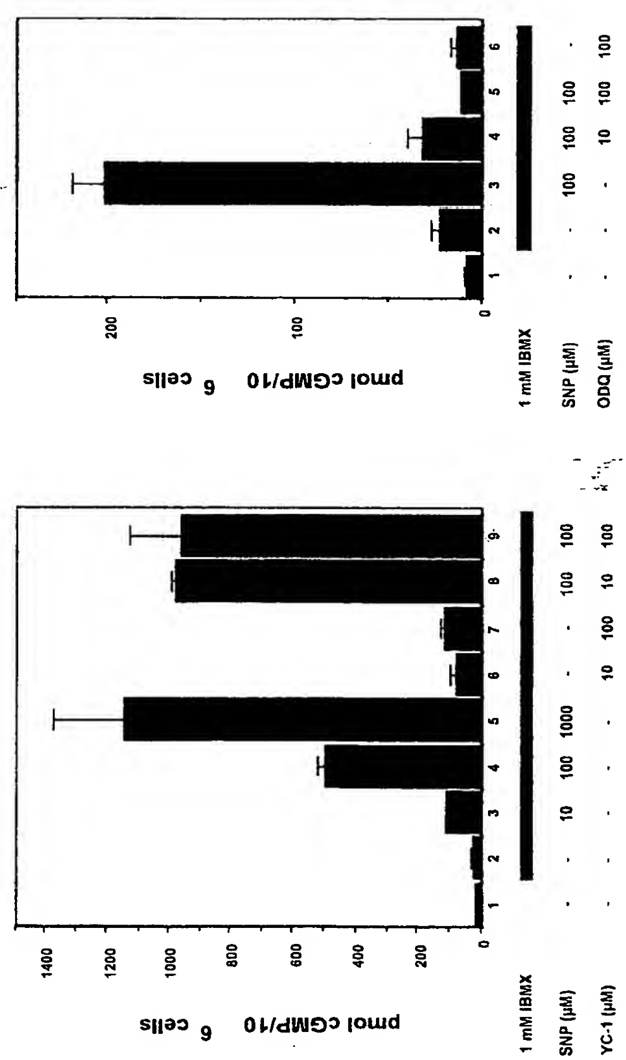

pmol cGMP/10 6 cells
1400
1200
1000
800
600
400
200
0
1 2 3 4 5 6 7 8 9
1 mM IBMX
SNP (µM) - - 10 100 1000 - - 100 100
YC-1 (µM) - - - - - 10 100 10 100
pmol cGMP/10 6 cells
200
100
0
1 2 3 4 5 6
1 mM IBMX
SNP (µM) - - 100 100 100 -
ODQ (µM) - - - 10 100 100

Fig. 11

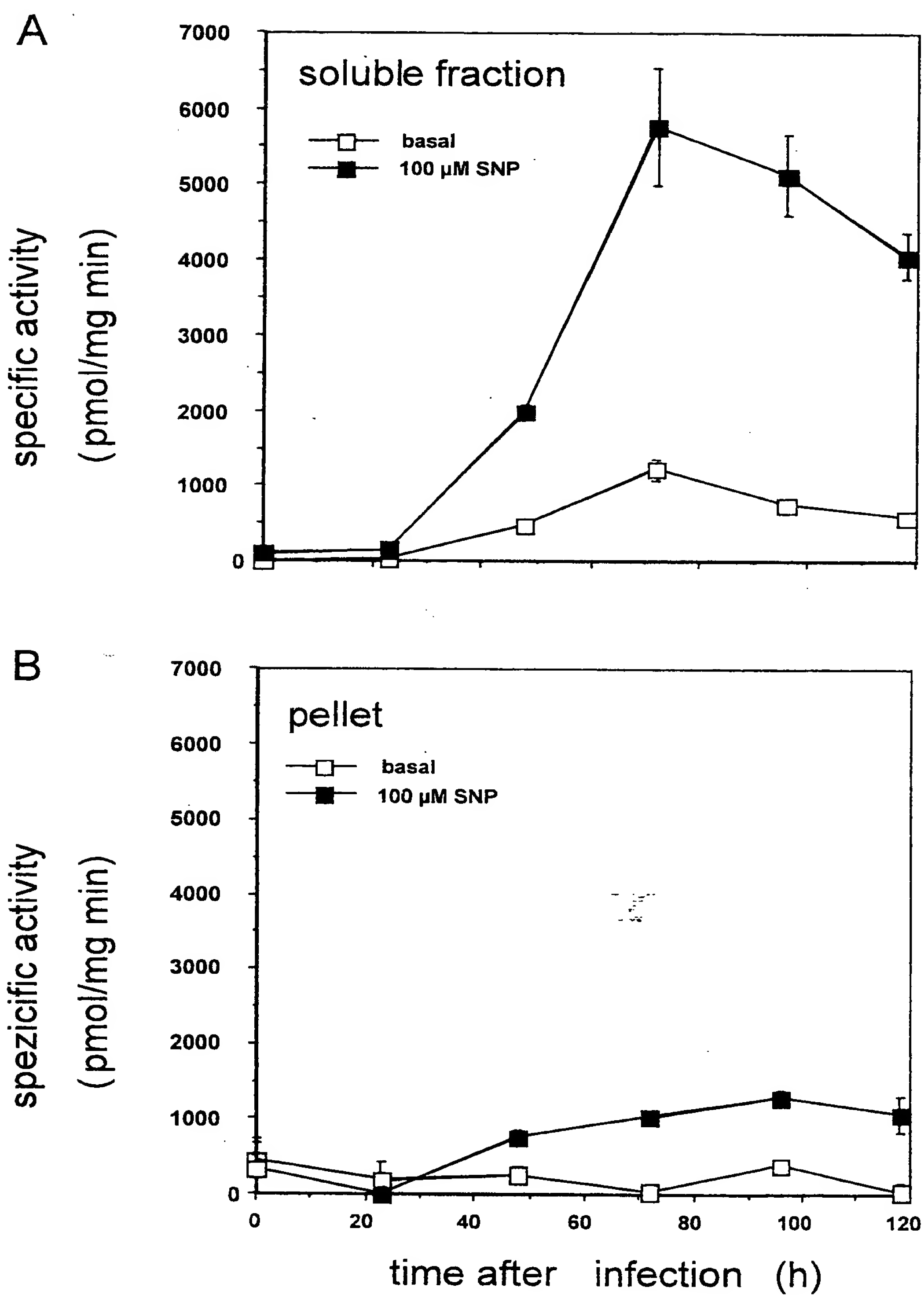

A
soluble fraction
basal
100 µM SNP
specific activity
(pmol/mg min)
7000
6000
5000
4000
3000
2000
1000
0
B
pellet
basal
100 µM SNP
spezicific activity
(pmol/mg min)
7000
6000
5000
4000
3000
2000
1000
0
0
20
40
60
80
100
120
time after infection (h)

Figure 12: Purification of GST-hsGCalpha1/beta1 on GSH-Sepharose 4B

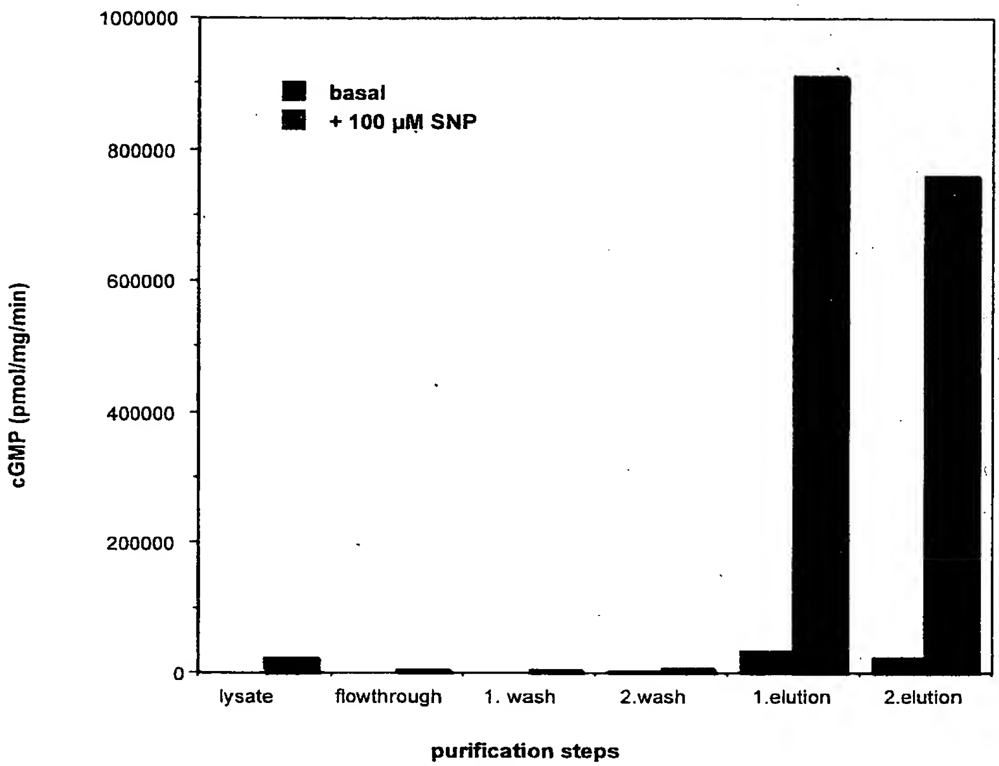
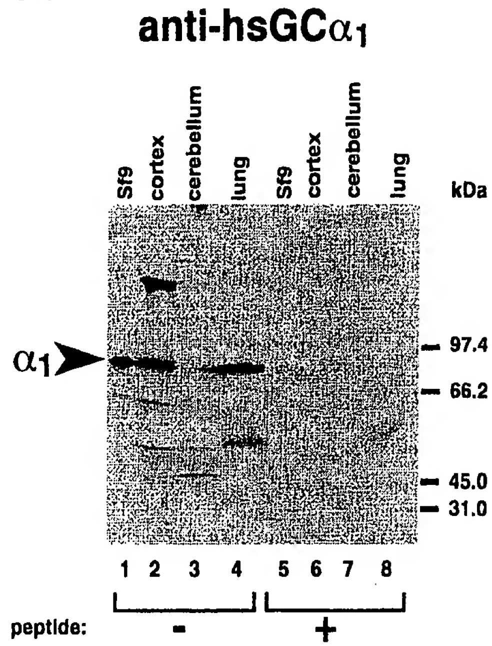


Figure 13

A


anti-hsGCα1
Sf9
cortex
cerebellum
lung
Sf9
cortex
cerebellum
lung
kDa
α1
97.4
66.2
45.0
31.0
1 2 3 4 5 6 7 8
peptide:
-
+

B

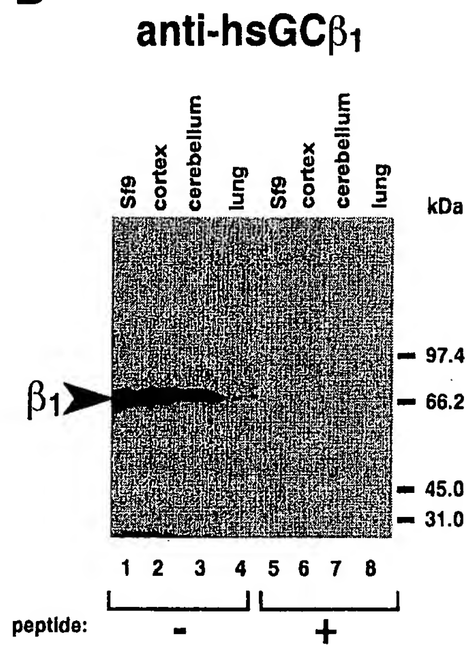

anti-hsGCβ1
Sf9
cortex
cerebellum
lung
Sf9
cortex
cerebellum
lung
kDa
β1
97.4
66.2
45.0
31.0
1 2 3 4 5 6 7 8
peptide:
-
+

Figure 14

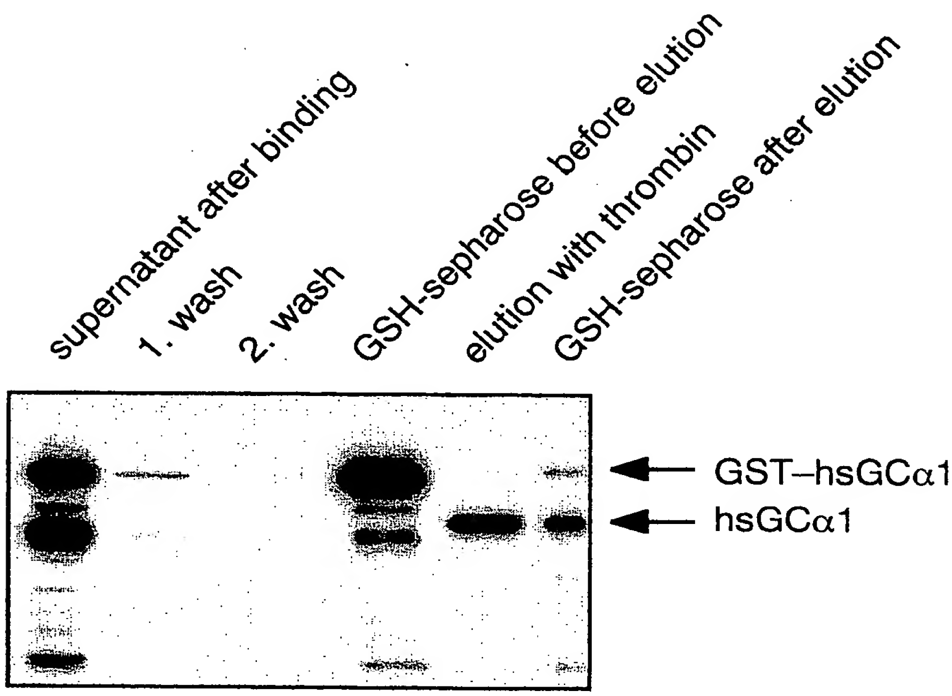

supernatant after binding
1. wash
2. wash
GSH-sepharose before elution
elution with thrombin
GSH-sepharose after elution
GST–hsGCα1
hsGCα1

Figure 15: Purification of hsGC $\alpha 1/\beta 1$ in a Coomassie stained SDS polyacryamide gel

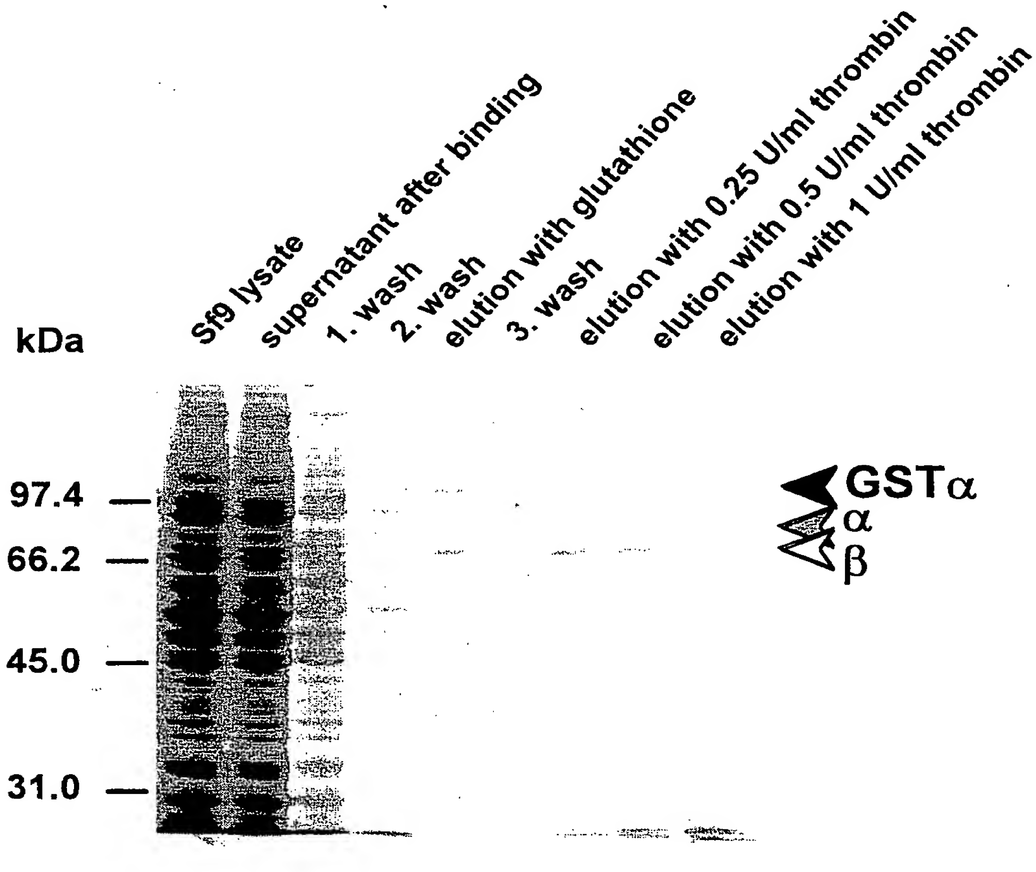


Figure 16: Construction of the hsGC-adenovectors

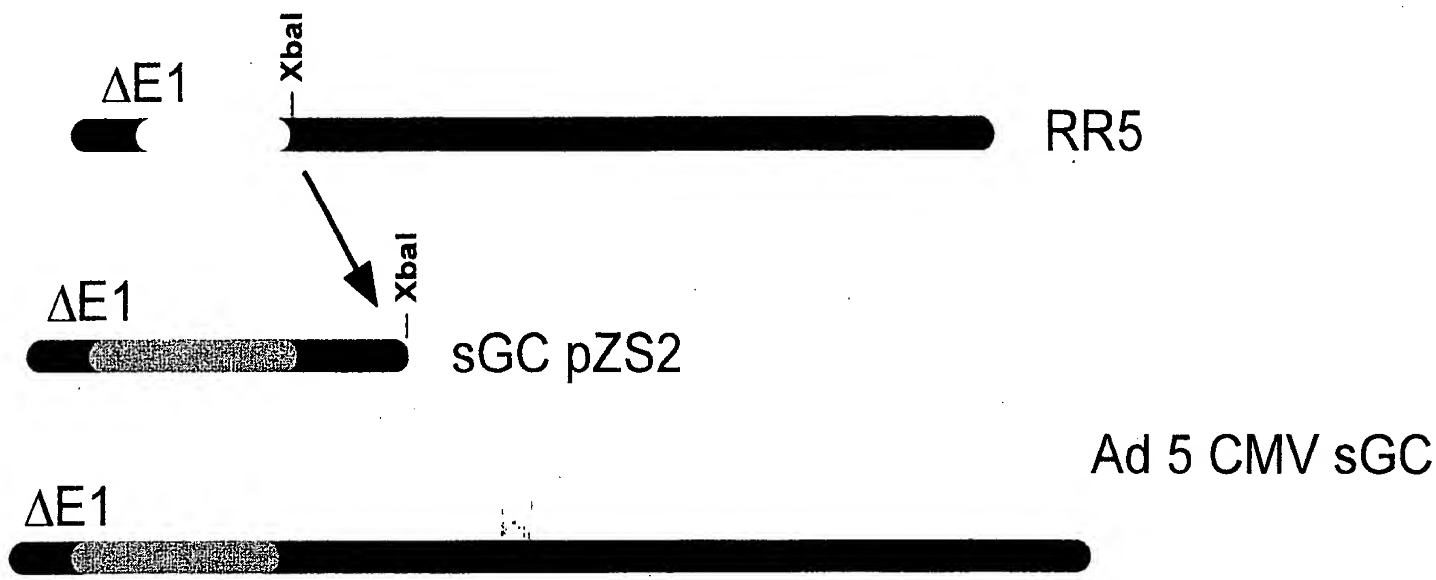


Figure 17:
Expression of human sGC in adenovirus-infected EA.hy926 cells

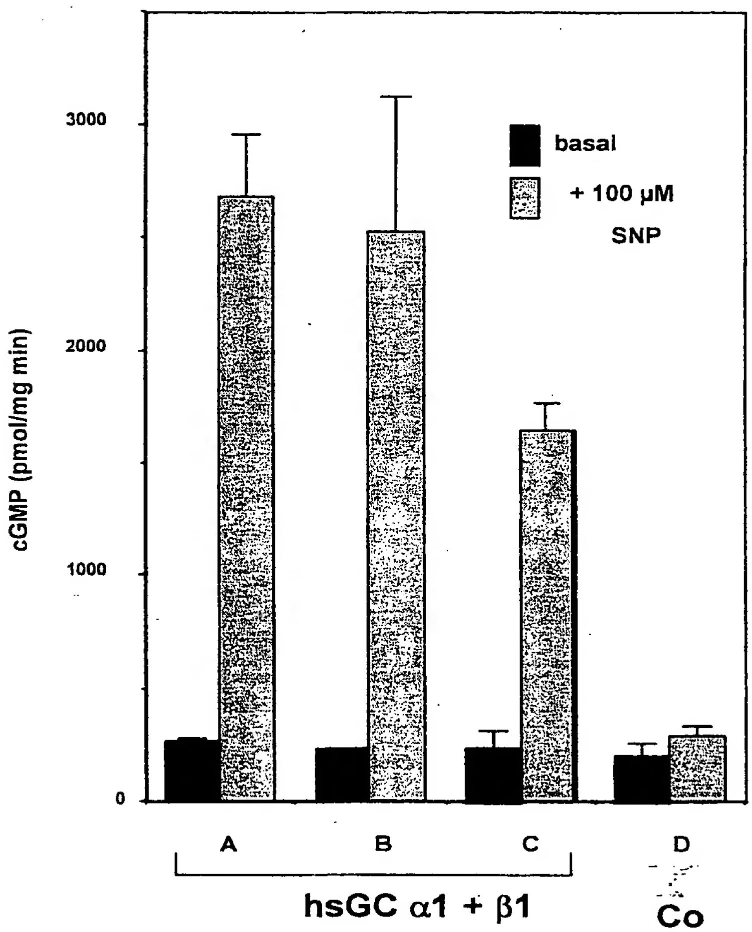


Figure 18

CCCTTATGGC GATTGGGCGG CTGCAGAGAC CAGGACTCAG TTCCCCTGCC CTAGTCTGAG
CCTAGTGGGT GGGACTCAGC TCAGAGTCAG TTTTCCAGAA GCAGGTTTCA GTGCAGAGTT
TTCCTACACT TTTCCTGCGC TAGAGCAGCG AGCAGCCTGG AACAGACCCA GGCGGAGGAC
ACCTGTGGGG GAGGGAGCGC CTGGAGGAGC TTAGAGACCC CAGCCGGGCG TGATCTCACC
ATGTGCGGAT TTGCGAGGCG CGCCCTGGAG CTGCTAGAGA TCCGGAAGCA CAGCCCCGAG
GTGTGCGAAG CCACCAAGAC TGCGGCTCTT GGAGAAAGCG TGAGCAGGGG GCCACCGCGG
TCTCCGCGCC TGTCTGCACC CTGTCGCCTG AGCTGCCTGA CAGTGACAAT GACATCCCAG
TTACCAGTGT CCTTGAATTG ATAGTGGCTT CTGTTTGTCA GTCTCATATA AGAACTACAG
CTCATCAGGA GGAGATCGCA GCAGGGTAAG AGACACCAAC ACCATGTTCT GCACGAAGCT
CAAGGATCTC AAGATCACAG GAGAGTGTCC TTTCTCCTTA CTGGCACCAG GTCAAGTTCC
TAACGAGTCT TCAGAGGAGG CAGCAGGAAG CTCAGAGAGC TGCAAAGCAA CCGTGCCCAT
CTGTCAAGAC ATTCCTGAGA AGAACATACA AGAAAGTCTT CCTCAAAGAA AAACCAGTCG
GAGCCGAGTC TATCTTCACA CTTTGGCAGA GAGTATTTGC AAACTGATTT TCCCAGAGTT
TGAACGGCTG AATGTTGCAC TTCAGAGAAC ATTGGCAAAG CACAAAATAA AAGAAAGCAG
GAAATCTTTG GAAAGAGAAG ACTTTGAAAA AACAATTGCA GAGCAAGCAG TTGCAGCAGG
AGTTCCAGTG GAGGTTATCA AAGAATCTCT TGGTGAAGAG GTTTTTAAAA TATGTTACGA
GGAAGATGAA AACATCCTTG GGGTGGTTGG AGGCACCCTT AAAGATTTTT TAAACAGCTT
CAGTACCCTT CTGAAACAGA GCAGCCATTG CCAAGAAGCA GGAAAAAGGG GCAGGCTTGA
GGACGCCTCC ATTCTATGCC TGGATAAGGA GGATGATTTT CTACATGTTT ACTACTTCTT
CCCTAAGAGA ACCACCTCCC TGATTCTTCC CGGCATCATA AAGGCAGCTG CTCACGTATT
ATATGAAACG GAAGTGGAAG TGTCGTTAAT GCCTCCCTGC TTCCATAATG ATTGCAGCGA
GTTTGTGAAT CAGCCCTACT TGTTGTACTC CGTTCACATG AAAAGCACCA AGCCATCCCT
GTCCCCCAGC AAACCCCAGT CCTCGCTGGT GATTCCCACA TCGCTATTCT GCAAGACATT
TCCATTCCAT TTCATGTTTG ACAAAGATAT GACAATTCTG CAATTTGGCA ATGGCATCAG
AAGGCTGATG AACAGGAGAG ACTTTCAAGG AAAGCCTAAT TTTGAAGAAT ACTTTGAAAT
TCTGACTCCA AAAATCAACC AGACGTTTAG CGGGATCATG ACTATGTTGA ATATGCAGTT
TGTTGTACGA GTGAGGAGAT GGGACAACTC TGTGAAGAAA TCTTCAAGGG TTATGGACCT
CAAAGGCCAA ATGATCTACA TTGTTGAATC CAGTGCAATC TTGTTTTTGG GGTCACCCTG
TGTGGACAGA TTAGAAGATT TTACAGGACG AGGGCTCTAC CTCTCAGACA TCCCAATTCA
CAATGCACTG AGGGATGTGG TCTTAATAGG GGAACAAGCC CGAGCTCAAG ATGGCCTGAA
GAAGAGGCTG GGGAAGCTGA AGGCTACCCT TGAGCAAGCC CACCAAGCCC TGGAGGAGGA
GAAGAAAAAG ACAGTAGACC TTCTGTGCTC CATATTTCCC TGTGAGGTTG CTCAGCAGCT
GTGGCAAGGG CAAGTTGTGC AAGCCAAGAA GTTCAGTAAT GTCACCATGC TCTTCTCAGA
CATCGTTGGG TTCACTGCCA TCTGCTCCCA GTGCTCACCG CTGCAGGTCA TCACCATGCT
CAATGCACTG TACACTCGCT TCGACCAGCA GTGTGGAGAG CTGGATGTCT ACAAGGTGGA
GACCATTGGC GATGCCTATT GTGTAGCTGG GGGATTACAC AAAGAGAGTG ATACTCATGC
TGTTCAGATA GCGCTGATGG CCCTGAAGAT GATGGAGCTC TCTGATGAAG TTATGTCTCC
CCATGGAGAA CCTATCAAGA TGCGAATTGG ACTGCACTCT GGATCAGTTT TTGCTGGCGT
CGTTGGAGTT AAAATGCCCC GTTACTGTCT TTTTGGAAAC AATGTCACTC TGGCTAACAA
ATTTGAGTCC TGCAGTGTAC CACGAAAAAT CAATGTCAGC CCAACAACTT ACAGATTACT
CAAAGACTGT CCTGGTTTCG TGTTTACCCC TCGATCAAGG GAGGAACTTC CACCAAACTT
CCCTAGTGAA ATCCCCGGAA TCTGCCATTT TCTGGATGCT TACCAACAAG GAACAAACTC
AAAACCATGC TTCCAAAAGA AAGATGTGGA AGATGGCAAT GCCAATTTTT TAGGCAAAGC
ATCAGGAATA GATTAGCAAC CTATATACCT ATTTATAAGT CTTTGGGGTT TGACTCATTG
AAGATGTGTA GAGCCTCTGA AAGCACTTTA GGGATTGTAG ATGGCTAACA AGCAGTATTA
AAATTTCAGG AGCCAAGTCA CAATCTTTCT CCTGTTTAAC ATGACAAAAT GTACTCACTT
CAGTACTTCA GCTCTTCAAG AAAAAAAAAA AAACCTTAAA AAGCTACTTT TGTGGGAGTA
TTTCTATTAT ATAACCAGCA CTTACTACCT GTACTCAAAA TTCAGCACCT TGTACATATA
TCAGATAATT GTAGTCAATT GTACAAACTG ATGGAGTCAC CTGCAATCTC ATATCCTGGT
GGAATGCCAT GGTTATTAAA GTGTGTTTGT GATAGTGTCG TCAAAAAAAA AAAAAAAAAA
AAAAAAAAAA AAAAA

Figure 19

Met Phe Cys Thr Lys Leu Lys Asp Leu Lys Ile Thr Gly Glu Cys Pro
Phe Ser Leu Leu Ala Pro Gly Gln Val Pro Asn Glu Ser Ser Glu Glu
Ala Ala Gly Ser Ser Glu Ser Cys Lys Ala Thr Val Pro Ile Cys Gln
Asp Ile Pro Glu Lys Asn Ile Gln Glu Ser Leu Pro Gln Arg Lys Thr
Ser Arg Ser Arg Val Tyr Leu His Thr Leu Ala Glu Ser Ile Cys Lys
Leu Ile Phe Pro Glu Phe Glu Arg Leu Asn Val Ala Leu Gln Arg Thr
Leu Ala Lys His Lys Ile Lys Glu Ser Arg Lys Ser Leu Glu Arg Glu
Asp Phe Glu Lys Thr Ile Ala Glu Gln Ala Val Ala Ala Gly Val Pro
Val Glu Val Ile Lys Glu Ser Leu Gly Glu Glu Val Phe Lys Ile Cys
Tyr Glu Glu Asp Glu Asn Ile Leu Gly Val Val Gly Gly Thr Leu Lys
Asp Phe Leu Asn Ser Phe Ser Thr Leu Leu Lys Gln Ser Ser His Cys
Gln Glu Ala Gly Lys Arg Gly Arg Leu Glu Asp Ala Ser Ile Leu Cys
Leu Asp Lys Glu Asp Asp Phe Leu His Val Tyr Tyr Phe Phe Pro Lys
Arg Thr Thr Ser Leu Ile Leu Pro Gly Ile Ile Lys Ala Ala Ala His
Val Leu Tyr Glu Thr Glu Val Glu Val Ser Leu Met Pro Pro Cys Phe
His Asn Asp Cys Ser Glu Phe Val Asn Gln Pro Tyr Leu Leu Tyr Ser
Val His Met Lys Ser Thr Lys Pro Ser Leu Ser Pro Ser Lys Pro Gln
Ser Ser Leu Val Ile Pro Thr Ser Leu Phe Cys Lys Thr Phe Pro Phe
His Phe Met Phe Asp Lys Asp Met Thr Ile Leu Gln Phe Gly Asn Gly
Ile Arg Arg Leu Met Asn Arg Arg Asp Phe Gln Gly Lys Pro Asn Phe
Glu Glu Tyr Phe Glu Ile Leu Thr Pro Lys Ile Asn Gln Thr Phe Ser
Gly Ile Met Thr Met Leu Asn Met Gln Phe Val Val Arg Val Arg Arg
Trp Asp Asn Ser Val Lys Lys Ser Ser Arg Val Met Asp Leu Lys Gly
Gln Met Ile Tyr Ile Val Glu Ser Ser Ala Ile Leu Phe Leu Gly Ser
Pro Cys Val Asp Arg Leu Glu Asp Phe Thr Gly Arg Gly Leu Tyr Leu
Ser Asp Ile Pro Ile His Asn Ala Leu Arg Asp Val Val Leu Ile Gly
Glu Gln Ala Arg Ala Gln Asp Gly Leu Lys Lys Arg Leu Gly Lys Leu
Lys Ala Thr Leu Glu Gln Ala His Gln Ala Leu Glu Glu Glu Lys Lys
Lys Thr Val Asp Leu Leu Cys Ser Ile Phe Pro Cys Glu Val Ala Gln
Gln Leu Trp Gln Gly Gln Val Val Gln Ala Lys Lys Phe Ser Asn Val
Thr Met Leu Phe Ser Asp Ile Val Gly Phe Thr Ala Ile Cys Ser Gln
Cys Ser Pro Leu Gln Val Ile Thr Met Leu Asn Ala Leu Tyr Thr Arg
Phe Asp Gln Gln Cys Gly Glu Leu Asp Val Tyr Lys Val Glu Thr Ile
Gly Asp Ala Tyr Cys Val Ala Gly Gly Leu His Lys Glu Ser Asp Thr
His Ala Val Gln Ile Ala Leu Met Ala Leu Lys Met Met Glu Leu Ser
Asp Glu Val Met Ser Pro His Gly Glu Pro Ile Lys Met Arg Ile Gly
Leu His Ser Gly Ser Val Phe Ala Gly Val Val Gly Val Lys Met Pro
Arg Tyr Cys Leu Phe Gly Asn Asn Val Thr Leu Ala Asn Lys Phe Glu
Ser Cys Ser Val Pro Arg Lys Ile Asn Val Ser Pro Thr Thr Tyr Arg
Leu Leu Lys Asp Cys Pro Gly Phe Val Phe Thr Pro Arg Ser Arg Glu
Glu Leu Pro Pro Asn Phe Pro Ser Glu Ile Pro Gly Ile Cys His Phe
Leu Asp Ala Tyr Gln Gln Gly Thr Asn Ser Lys Pro Cys Phe Gln Lys
Lys Asp Val Glu Asp Gly Asn Ala Asn Phe Leu Gly Lys Ala Ser Gly
Ile Asp End

Figure 20

CCCCCCCCCG CCGCTGCCGC CTCTGCCTGG GTCCCTTCGG CCGTACCTCT GCGTGGGGGC
TGCCTCCCCG GCTCCCGGTG CAGACACCAT GTACGGATTT GTGAATCACG CCCTGGAGTT
GCTGGTGATC CGCAATTACG GCCCCGAGGT GTGGGAAGAC ATCAAAAAAG AGGCACAGTT
AGATGAAGAA GGACAGTTTC TTGTCAGAAT AATATATGAT GACTCCAAAA CTTATGATTT
GGTTGCTGCT GCAAGCAAAG TCCTCAATCT CAATGCTGGA GAAATCCTCC AAATGTTTGG
GAAGATGTTT TTCGTCTTTT GCCAAGAATC TGGTTATGAT ACAATCTTGC GTGTCCTGGG
CTCTAATGTC AGAGAATTTC TACAGAACCT TGATGCTCTG CACGACCACC TTGCTACCAT
CTACCCAGGA ATGCGTGCAC CTTCCTTTAG GTGCACTGAT GCAGAAAAGG GCAAAGGACT
CATTTTGCAC TACTACTCAG AGAGAGAAGG ACTTCAGGAT ATTGTCATTG GAATCATCAA
AACAGTGGCA CAACAAATCC ATGGCACTGA AATAGACATG AAGGTTATTC AGCAAAGAAA
TGAAGAATGT GATCATACTC AATTTTTAAT TGAAGAAAAA GAGTCAAAAG AAGAGGATTT
TTATGAAGAT CTTGACAGAT TTGAAGAAAA TGGTACCCAG GAATCACGCA TCAGCCCATA
TACATTCTGC AAAGCTTTTC CTTTTCATAT AATATTTGAC CGGGACCTAG TGGTCACTCA
GTGTGGCAAT GCTATATACA GAGTTCTCCC CCAGCTCCAG CCTGGGAATT GCAGCCTTCT
GTCTGTCTTC TCGCTGGTTC GTCCTCATAT TGATATTAGT TTCCATGGGA TCCTTTCTCA
CATCAATACT GTTTTTGTAT TGAGAAGCAA GGAAGGATTG TTGGATGTGG AGAAATTAGA
ATGTGAGGAT GAACTGACTG GGACTGAGAT CAGCTGCTTA CGTCTCAAGG GTCAAATGAT
CTACTTACCT GAAGCAGATA GCATACTTTT TCTATGTTCA CCAAGTGTCA TGAACCTGGA
CGATTTGACA AGGAGAGGGC TGTATCTAAG TGACATCCCT CTGCATGATG CCACGCGCGA
TCTTGTTCTT TTGGGAGAAC AATTTAGAGA GGAATACAAA CTCACCCAAG AACTGGAAAT
CCTCACTGAC AGGCTACAGC TCACGTTAAG AGCCCTGGAA GATGAAAAGA AAAAGACAGA
CACATTGCTG TATTCTGTCC TTCCTCCGTC TGTTGCCAAT GAGCTGCGGC ACAAGCGTCC
AGTGCCTGCC AAAAGATATG ACAATGTGAC CATCCTCTTT AGTGGCATTG TGGGCTTCAA
TGCTTTCTGT AGCAAGCATG CATCTGGAGA AGGAGCCATG AAGATCGTCA ACCTCCTCAA
CGACCTCTAC ACCAGATTTG ACACACTGAC TGATTCCCGG AAAAACCCAT TTGTTTATAA
GGTGGAGACT GTTGGTGACA AGTATATGAC AGTGAGTGGT TTACCAGAGC CATGCATTCA
CCATGCACGA TCCATCTGCC ACCTGGCCTT GGACATGATG GAAATTGCTG GCCAGGTTCA
AGTAGATGGT GAATCTGTTC AGATAACAAT AGGGATACAC ACTGGAGAGG TAGTTACAGG
TGTCATAGGA CAGCGGATGC CTCGATACTG TCTTTTTGGG AATACTGTCA ACCTCACAAG
CCGAACAGAA ACCACAGGAG AAAAGGGAAA AATAAATGTG TCTGAATATA CATACAGATG
TCTTATGTCT CCAGAAAATT CAGATCCACA ATTCCACTTG GAGCACAGAG GCCCAGTGTC
CATGAAGGGC AAAAAAGAAC CAATGCAAGT TTGGTTTCTA TCCAGAAAAA ATACAGGAAC
AGAGGAAACA AAGCAGGATG ATGACTGAAT CTTGGATTAT GGGGTGAAGA GGAGTACAGA
CTAGGTTCCA GTTTTCTCCT AACACGTGCC AAGCCCAGGA GCAGTTCTTC CCTATGGATA
CAGATTTTCT TTTGTCCTTG TCCATTACCC CAAGACTTTC TTCTAGATAT ATCTCTCACT
ATCCGTTATT CAACCTTAGC TCTGCTTTCT ATTACTTTTT AGGCTTTAGT ATATTATCTA
AAGTTTGGCT TTTGATGTGG ATGATGTGAG CTTCATGTGT CTTAAAATCT ACTACAAGCA
TTACCTAACA TGGTGATCTG CAAGTAGTAG GCACCCAATA AATATTTGTT GAATTTAGTT
AAATGAAACT GAACAGTGTT TGGCCATGTG TATATTTATA TCATGTTTAC CAAATCTGTT
TAGTGTTCCA CATATATGTA TATGTATATT TTAATGACTA TAATGTAATA AAGTTTATAT
CATGTTGGTG TATATCATTA TAGAAATCAT TTTCTAAAGG AGT

Figure 21

Met Tyr Gly Phe Val Asn His Ala Leu Glu Leu Leu Val Ile Arg Asn
Tyr Gly Pro Glu Val Trp Glu Asp Ile Lys Lys Glu Ala Gln Leu Asp
Glu Glu Gly Gln Phe Leu Val Arg Ile Ile Tyr Asp Asp Ser Lys Thr
Tyr Asp Leu Val Ala Ala Ala Ser Lys Val Leu Asn Leu Asn Ala Gly
Glu Ile Leu Gln Met Phe Gly Lys Met Phe Phe Val Phe Cys Gln Glu
Ser Gly Tyr Asp Thr Ile Leu Arg Val Leu Gly Ser Asn Val Arg Glu
Phe Leu Gln Asn Leu Asp Ala Leu His Asp His Leu Ala Thr Ile Tyr
Pro Gly Met Arg Ala Pro Ser Phe Arg Cys Thr Asp Ala Glu Lys Gly
Lys Gly Leu Ile Leu His Tyr Tyr Ser Glu Arg Glu Gly Leu Gln Asp
Ile Val Ile Gly Ile Ile Lys Thr Val Ala Gln Gln Ile His Gly Thr
Glu Ile Asp Met Lys Val Ile Gln Gln Arg Asn Glu Glu Cys Asp His
Thr Gln Phe Leu Ile Glu Glu Lys Glu Ser Lys Glu Glu Asp Phe Tyr
Glu Asp Leu Asp Arg Phe Glu Glu Asn Gly Thr Gln Glu Ser Arg Ile
Ser Pro Tyr Thr Phe Cys Lys Ala Phe Pro Phe His Ile Ile Phe Asp
Arg Asp Leu Val Val Thr Gln Cys Gly Asn Ala Ile Tyr Arg Val Leu
Pro Gln Leu Gln Pro Gly Asn Cys Ser Leu Leu Ser Val Phe Ser Leu
Val Arg Pro His Ile Asp Ile Ser Phe His Gly Ile Leu Ser His Ile
Asn Thr Val Phe Val Leu Arg Ser Lys Glu Gly Leu Leu Asp Val Glu
Lys Leu Glu Cys Glu Asp Glu Leu Thr Gly Thr Glu Ile Ser Cys Leu
Arg Leu Lys Gly Gln Met Ile Tyr Leu Pro Glu Ala Asp Ser Ile Leu
Phe Leu Cys Ser Pro Ser Val Met Asn Leu Asp Asp Leu Thr Arg Arg
Gly Leu Tyr Leu Ser Asp Ile Pro Leu His Asp Ala Thr Arg Asp Leu
Val Leu Leu Gly Glu Gln Phe Arg Glu Glu Tyr Lys Leu Thr Gln Glu
Leu Glu Ile Leu Thr Asp Arg Leu Gln Leu Thr Leu Arg Ala Leu Glu
Asp Glu Lys Lys Lys Thr Asp Thr Leu Leu Tyr Ser Val Leu Pro Pro
Ser Val Ala Asn Glu Leu Arg His Lys Arg Pro Val Pro Ala Lys Arg
Tyr Asp Asn Val Thr Ile Leu Phe Ser Gly Ile Val Gly Phe Asn Ala
Phe Cys Ser Lys His Ala Ser Gly Glu Gly Ala Met Lys Ile Val Asn
Leu Leu Asn Asp Leu Tyr Thr Arg Phe Asp Thr Leu Thr Asp Ser Arg
Lys Asn Pro Phe Val Tyr Lys Val Glu Thr Val Gly Asp Lys Tyr Met
Thr Val Ser Gly Leu Pro Glu Pro Cys Ile His His Ala Arg Ser Ile
Cys His Leu Ala Leu Asp Met Met Glu Ile Ala Gly Gln Val Gln Val
Asp Gly Glu Ser Val Gln Ile Thr Ile Gly Ile His Thr Gly Glu Val
Val Thr Gly Val Ile Gly Gln Arg Met Pro Arg Tyr Cys Leu Phe Gly
Asn Thr Val Asn Leu Thr Ser Arg Thr Glu Thr Thr Gly Glu Lys Gly
Lys Ile Asn Val Ser Glu Tyr Thr Tyr Arg Cys Leu Met Ser Pro Glu
Asn Ser Asp Pro Gln Phe His Leu Glu His Arg Gly Pro Val Ser Met
Lys Gly Lys Lys Glu Pro Met Gln Val Trp Phe Leu Ser Arg Lys Asn
Thr Gly Thr Glu Glu Thr Lys Gln Asp Asp Asp end

Figure 22

Phe Thr Pro Arg Ser Arg Glu Glu Leu Pro Pro Asn Phe Pro

Figure 23

Lys Gly Lys Lys Glu Pro Met Gln Val Trp Phe Leu Ser Arg Lys Asn
Thr Gly Thr Glu Glu Thr

Figure 24

upper primer

AAAAGGATCC ATGTTCTGCA CGAAGCTC

lower primer

ATTATGGAAG CAGGGAGG

Figure 25

upper primer

AAAAGGATCC ATGTACGGAT TTGTGAAT

lower primer

ATGCGTGATT CCTGGGTACC